SCARLET MALACHITE BEETLE *MALACHIUS AENEUS* (L.) (COL.: MELYRIDAE): STATUS AND DISTRIBUTION IN THE UK

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Abstract

Malachius aeneus (Linn.) is a beetle listed on the UK Biodiversity Action Plan. Recent survey work accompanied by a popular media appeal has highlighted the current status of this species in the UK. These new data are presented with a review of existing historical records. The validity of reports garnered by the appeal is discussed.

Introduction

The scarlet malachite beetle is an attractive insect, 7 – 9 mm in length, in a group colloquially known as the soft-winged flower beetles. Its striking livery, with the elytra suffused with bright red and metallic green, gives the beetle its colloquial name. Formerly regarded as common (Cox, 1874), *M. aeneus* has been recorded from 37 Watsonian vice-counties across the UK. In recent years the species has been in decline and was added to the UK Biodiversity Action Plan (UKBAP) in 1999 (HMSO, 1999) and is listed in Red Data Book category 2 (Vulnerable) in Shirt (1987).

Surveys contracted by English Nature between 1999 and 2001 found the beetle in just 3 10-kilometre O.S grid squares in England, at sites in North Essex, Hertfordshire and the New Forest (Hodge, 2001, Plant, 2002).

Historic Distribution

Malachius aeneus was regarded as a common species by Victorian coleopterists, widely distributed across southern Britain (Stephens, 1839; Cox, 1874). However, approaching turn of the century, there is some evidence that a range contraction had been noted, and from 1890 onwards the beetle is described by most authors as local (e.g., Fowler, 1890; Joy, 1932).

Due to its distinctive appearance, historic records of the scarlet malachite beetle have been accepted without question. During 2005, data were gathered from major UK Coleoptera collections adding to existing records extracted by Hodge (2000). The total of 230 records are presented in Figure 1.

In Britain, *Malachius aeneus* has been recorded outside England on three occasions, with two early records from South Glamorgan and a single Scottish specimen from the Isle of Arran. In England most records are from southern counties although there are a smattering of northern records from Yorkshire, County Durham, Cheshire and Lancashire. In the south, records from East Anglia, Oxfordshire and apparent former strongholds in Berkshire peter out by the end of the 1950s. In the last 30 years, finds in Kent (which has provided specimens from a number of sites since 1900), Surrey and Somerset represent the only locations away from current known sites. Records from all vice-counties are summarised in Table 1.

Figure 1. Historic distribution of *Malachius aeneus* in the UK. Black squares represent records from 10km squares.

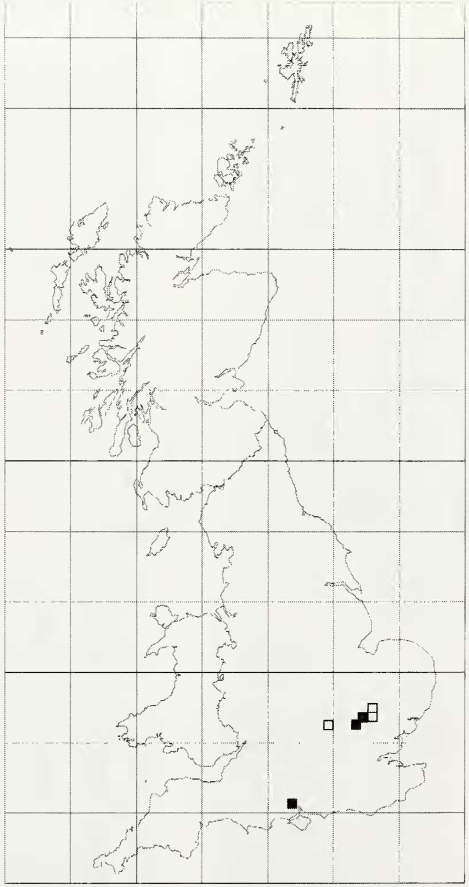

Figure 2. Recent distribution of *Malachius aeneus* in the UK. Black squares represent sites found in 2000 that continued to harbour the beetle in 2005. White squares represent new records from the 2005 survey (for reasons of clarity 10km squares are not to scale).

New finds in 2005

Repeated survey effort in 2005 confirmed the beetles' continued presence at the sites recorded by the English Nature survey and added records from three new 10 km squares (Figure 2).

A project investigating the scarlet malachite beetles' autecology centred on populations in Essex (Coleman, 2005) was accompanied by a media appeal orchestrated by the invertebrate conservation charity Buglife. A press release and survey leaflet generated a ripple of attention including features on local television and radio. In addition, an education project in Primary schools stimulated local interest. As a result, Buglife fielded over 100 enquiries regarding the scarlet malachite beetle from the general public. Whilst many of the reported sightings centred upon cases of mistaken identity (generally confusion with the equally scarlet Lily Beetle *Lilioceris lilii,* Chrysomelidae) a number of reports warranted further investigation.

Of these, three sites resulted in uncorroborated records and a fourth a likely new breeding area (two specimens, male and female, were discovered here). The provenance of these new records are described in Table 2.

Assessing the validity of uncorroborated reports

In any attempt to involve the general public in survey work the validity of the records produced should be the subject of scrutiny. Indeed, 'citizen science' has received widespread criticism concerning the reliability of data collected by non-specialists. This project produced three new sites that, whilst uncorroborated, can be treated with a high degree of confidence. For each new record the site was visited and the person reporting the sighting was interviewed.

At sites where records are accepted but specimens were not located the following three justifications are applicable: (1) Visits made to authenticate the records were made on days which were likely to prove unproductive for field work (in heavy rain when beetles could seldom be found by sweep-netting). This was necessitated by the priority given to the ecological study. but obviously reduced the likelihood of finding specimens on a brief visit. (2) All sites contained areas of suitable habitat with primary food-plants. (3) On each occasion the person reporting the sighting had had a close encounter with the insect and had held it in their hand for a period of time (one was picked from a picnic rug, one was rescued from a water-butt and a third had become entangled in hair). Each reporter was presented with a live specimen for verification – a technique that appeared to be very successful (accepted recorders quickly and unequivocally identified *Malachius aeneus* – a number of others were unable to do so and these reports were rejected on grounds of insufficient evidence).

Conservation implications and future action

Despite receiving a high degree of media interest, the comparatively small number of new records of *Malachius aeneus* serves to confirm its rarity in the UK and underline its *Red Data Book* status. However, optimism for the future of this

Vice County (Number)		Years with records	Year of last record
Clyde Islands (100)	1	1892	
Durham (66)	1	before 1900	
North-west Yorkshire (65)		1	before 1900
South-west Yorkshire (63)		1	1983
South-east Yorkshire (61)		1	1940
South Lancashire (59)	1	1891	
Cheshire (58)	1	before 1900	
Derbyshire (57)	1	before 1900	
Glamorganshire (41)	2	before 1900	
Warwickshire (38)	3	before 1900	
Herefordshire (36)	3	1950	
East Gloucestershire (33)		1	1944
Bedfordshire (30)	1	2005	
Cambridgeshire (29)	4	1960	
East Norfolk (27)	2	1893	
West Suffolk (26)	1	1908	
East Suffolk (25)	4	1950	
Buckinghamshire (24)	1	1869	
Oxfordshire (23)	5	1949	
Berkshire (22)	17	1953	
Middlesex (21)	3	1893	
Hertfordshire (20)	11	2005	
North Essex (19)	12	2005	
South Essex (18)	7	2005	
Surrey (17)	10	1996	
West Kent (16)	17	2000	
East Kent (15)	5	1984	
East Sussex (14)	5	1907	
West Sussex (13)	1	before 1900	
North Hampshire (12)	5	1945	
South Hampshire (11)	32	2005	
Isle of Wight (10)	1	1913	
Dorset (9)	4	1995	
North Somerset (6)	5	1987	
South Somerset (5)	1	1949	
North Devon (4)	1	before 1900	
South Devon (3)	1	1962	

Table 1. Records of the scarlet malachite beetle (*Malachius aeneus)* in the UK by Watsonian Vice-County. *(Data source: NBN, museum records, private collections).*

distinctive insect can be taken from its apparent fidelity and persistence at known sites which have now had their conservation importance highlighted. Monitoring at these locations is due to continue in 2006 along with further investigation based upon the new findings. Buglife intend to renew their interest in this species with further appeals: reports of the scarlet malachite beetle should be referred to scarlet.malachite@buglife.co.uk.

Site	O.S. Grid Ref	Source	Notes
Great Billington, Bedfordshire	SP 9422	TV appeal	Potential new county record
Rickling Green, North Essex	TL 5130	Leaflet	Individuals sighted on more than one occasion
Howlett End, North Essex	TL 5735	TV appeal	Two specimens present
Waltons Park, North Essex	TL 5943	Education Project	Identified in the field from publicity postcard

Table 2. New sites reported by members of the public as a result of the media appeal in 2005.

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